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ABSTRACT

This presentation discusses research on the effects of adult- and self-instruction on the performance of a picture grouping task by black children in primary and elementary school. Kindergarten children and first-, fifth- and sixth-grade students were shown pictures that could be divided into four sets. Within each set the pictures were similar in color, depicted action, and category label. Adult-instructed children were shown the pictures one at a time. The adult named the pictures and the child repeated the name. Pictures were placed in rowed arrays containing common set attributes and the adults explained how items in the set were similar. Self-instructed children were told to "pretend to be a toy store manager" and "put things together that are alike...." Children then studied the groups they had formed. After the pictures were removed each child was given three retrieval cue tests asking for recall of items by color, action and category label. Results indicate that young children who were instructed by an adult did as well as adult-instructed older children, but young children left to devise their own strategy did less well than older children who devised a strategy. Adult-instructed first graders remembered more than self-instructed first graders did. (Author/RH)

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Instruction: One Key to Success

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Instruction: One Key to Successful Performance

There are many factors that have been identified as influencing the success of children in school. Inside-the-person factors often cited to account for the performance of Black children have been such as self-concept (e.g. Soares & Soares, 1969), and self-control (e.g. Katz, 1967). Indeed even the child's language, if the child is from the poor among us is suspect by many educators and psychologists (Cazden, 1970; Harber & Bryen, 1976). Outside-the-person factors have included such as racial bias of materials (e.g. Banks, 1970), and teacher attitudes and expectations (Washington, 1979). Although not specifically associated with the performance of Black children, an additional external effect on performance is class size. Recent evidence points to the value of smaller classes for the child's learning (Cohen & Filby, 1979). This evidence is important since some of it was collected in day care classrooms and day care services a sizable number of Black children.

The large number of influences that have been found to affect the Black child's success simply testifies to learning being a very complex process. Without a doubt no single factor or a particular set of factors can account for the child's school performance. Even so those set of factors more closely associated with what happens in the classroom, the outside-the-person events, offers more promise than the child's internal characteristics (e.g. Banks, McQuater, & Hubbard, 1978; Weinberg, 1977; Zirkel, 1971). I will present some findings about one such

external factor--that of instruction. Although instruction only has been selected, keep in mind the caution against perceiving it as an all-powerful influence, independent of other influences. Selection of instruction simply reflects my own bias that we need to examine the ostensible function of the school--teaching children. Clearly the quality of instruction should not be overlooked for as every researcher here knows, to identify, for example self-concept, self-control, or motivation as causing differences in the amount learned assumes the condition of equivalent instruction.

Instruction may be defined as teacher behavior designed to make explicit the relation between what the child already knows and the information to be learned or retained (Wittrock, 1979). Children know many ways and have much information that can aid their learning but they do not necessarily use the information or ways spontaneously. Instruction, then, is for the purpose of activating the relevant information and skills available to the child. Instruction may occur through description, imagination, demonstration, and so on.

Several studies (e.g. Moely & Jeffrey, 1974; Moely, Olson, Halwes & Flavell, 1969) have shown that adult demonstration of an effective means, usually called a strategy, for organizing information aids memory. We all know that older children remember more information than younger children. However, when the young child uses a strategy like the strategy of the older child, the young child tends to remember as much as the older child. Thus one means for examining the value of instruc-

tion is to determine whether or not young Black children who are instructed do as well as older Black children.

In this study simplistic laboratory-like procedures were used. The task consisted of twenty colored pictures, each picture drawn on a card. The pictures could be divided into four sets. Within each set the pictures were similar in color, depicted action, and category label. Your handout lists the sets. Younger children received 16 pictures and older children were shown 30 pictures.

Four groups of children participated in the study with assignment to groups randomized by age. The younger children were in kindergarten and first grade and the older children were in fifth and sixth grades. for ease of discussing these two age groups, I shall refer to them as grades one and five. As you can see by II, two groups, one at grade one and one at grade five, were instructed by an adult and two groups were self-instructed. The purpose was to determine the effect of type of instruction on what information the young child remembered, that is whether or not the child remembered the sets by color, category name, and depicted action and how much was remembered to pairs or these attributes by the younger child using older children as a baseline.

The adult instructed children were shown the pictures one at a time. The adult named the pictures and the child repeated the name. The pictures were placed in rowed arrays containing common set attributes. The investigator explained how the set was alike by saying, for example, "the truck, car, train, bus, and bicycle are rolling" or "the

plate, bowl, cup, fork, and spoon are falling." Only one kind of attribute was provided across all four sets. Thus one-third of the children was provided one of the three attributes. After the adult explained how the sets were alike, the child was asked to study the array and to think about how the items in each row were alike.

The self-instructed children also were shown the pictures and repeated the names of them. The pictures were placed in rows but care was taken to not place more than two pictures from the same set in the same row. Children were told to "pretend to be a toy store manager." It was explained that a manager puts like things together to sell them. The child was asked "what things would you put together?" and told to "put things together that are alike, that go together in some way." After the child had formed his/her groups, the child was asked to tell how the items in the groups were alike. Children then studied the groups they had formed.

Following study, with the pictures removed, the child was given three retrieval cue tests, asking for recall to each of the attributes. To illustrate the color retrieval cue test, the adult said to the child, "please tell me all the things that you remember that were red. Now tell me the things you remember that were blue. Tell me all the brown things you remember. Tell me all the things you remember that were green." After each statement the adult waited for the child to answer. The color retrieval cue test would be followed by retrieval cues for action and category label. The retrieval tests were counter-

balanced across children.

A scoring procedure including the completeness of the set and type of explanation was developed to determine strategy level. As you can see, in Figure 1, adult instruction assured a similar level of strategy for the two age groups whereas self-instruction revealed sizable differences in level of strategy for the two age groups. The strategy level differences between grades one and five for the self-instructed group was significant.

For any set, three attributes could be remembered. If all three attributes for a set were retained, the child received a score of one. The maximum score was four. As shown in Figure 2 the number of first graders in the adult instructed group who remembered all three attributes to the four sets was almost equal to the number of fifth graders who recalled all three attributes to the four sets. These proportions were 75 and 81 for first and fifth grade respectively. The results for the self-instructed group were quite different; only 31% of the first graders compared to 88% of the fifth graders recalled all sets by the three attributes. These proportions differed significantly, $Z = 3.44$, $p < .05$, whereas no difference was found between the proportions of first graders and fifth graders in the adult-instructed group.

The amount recalled to the attributes was assessed by pairing the attributes. This pairing procedure was used in order to determine whether recall reflected use of more than one attribute. If the same

item was recalled appropriately to both attributes the child received a score of 1 with the total score divided by 16 for the first graders and 20 for the fifth graders.

The performance of the two instructed groups was analyzed separately. In Figure 3, however, results from all groups are plotted. Although the adult-instructed first graders recalled less in absolute terms than did the fifth graders, there was no grade effect. Both the younger and older children were influenced by the attributes, F (2,60) = 3.58, $p < .05$, with the combination of color and category label (C/T on Figure 3) yielding the highest recall.

Analysis of the self-instructed children showed that the first graders did less well than the fifth graders, F (1,30) = 11.50, $p < .001$. As can be seen in Figure 3, the pattern of recall was similar to that of the adult-instructed children. Color and category label yielded the highest recall. It is worth noting that the self-instructed young children performed less well than the adult-instructed young children. This difference shows that adult-instruction increased retention of the young child an average of 11%, ranging from 9% to 15% depending upon the pair of attributes.

The results for these separate analyses taken together offer a positive answer to the question posed in this investigation. Young children shown a strategy by an adult did as well as older children who were adult instructed but young children left to devise their own strategy did less well than older children who devised a strategy.

Importantly the adult instructed first graders remembered more than self-instructed first graders. This difference was most obvious for the number who used all three attributes in recalling all four sets as shown in Figure 2. The self-instructed first graders may have attended to only the attributes they named or they may not have used their strategy at all or if used, it was only in a limited way. I believe the difference between the two first grade groups was in the use of strategy given the pattern of recall similarity and strategy level similarity. I think instruction by an adult signaled grouping and seeing the commonality within a group as a viable technique for aiding the outcome--recall. The self-instructed children did not make this connection spontaneously.

It is difficult to perceive the short-term, less than five minutes, instruction used here as teaching the child something new. The behavior of the self-instructed first grade children is evidence of the availability of a grouping strategy. These children knew what to do when asked to "put things alike together"; they did not however on their own put all possible items in one group. These first grade Black children, like most children this age, grouped into pairs, seldom forming groups of four. Simply the first graders producing their own strategy produced an inefficient strategy (at least inefficient for the task at hand). Instruction helped the child use an available technique by showing the strategy in an efficient form and by specifying the relation between strategy and task outcome. From such short-

term instruction for such highly familiar items presented pictorially, it is rather remarkable to observe an 11% increase in retention.

The laboratory-like procedures here were obviously very different from what occurs in the classroom. Some differences were: (1) the child was alone with the adult; (2) the child was asked to remember a list of items; (3) the task was treated as a game and not a lesson; (4) the experimenter knew nothing about the child's prior learning history. Even so such results as obtained here particularly since they agree with other investigations (e.g. Botvin & Murray, 1975) where young Black children benefited from short-term instruction offer strong hints about the value of instruction. At the very least, such studies point to the possibility of misjudging the achievement competence of Black children if that achievement is assessed on a task for which the child has not connected a process with task outcome. It is the function of instruction to help the child make this connection. I believe that before we search for other causes of the Black child's success in school, we must be sure that instruction promotive of success has occurred.

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I. Task Pictures

set 1: Truck, car, train, bus, bicycle colored red and depicted as moving down a hill

set 2: policewoman, fireman, postman, pilot, sailor shown in blue clothing and depicted as walking

set 3: bear, cat, monkey, squirrel, snake colored brown and depicted as climbing a tree

set 4: cup, fork, bowl, spoon, plate colored green and depicted as falling from a table

II. Experimental Groups

n = 16 age - 81 mos.	n = 16 age - 83 mos.
n = 16 age - 139	n = 16 age - 140

Adult Instructed | Self Instructed

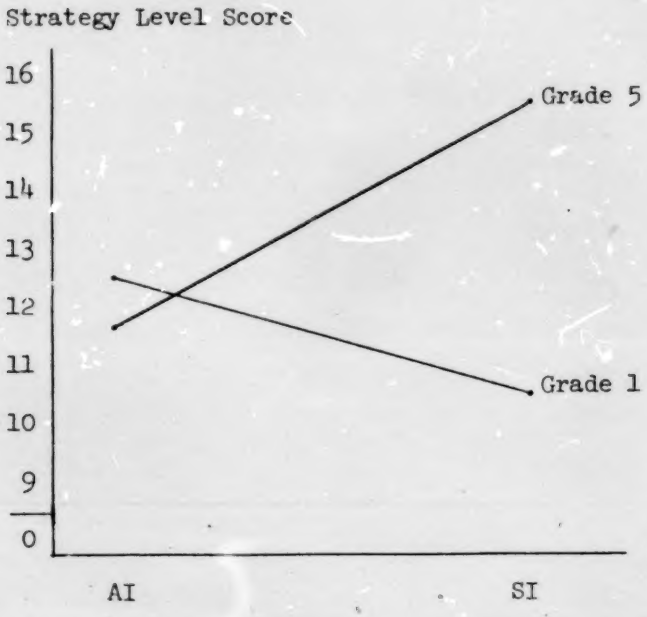

Figure 1. Strategy level by instructional condtion:
AI = adult instructed and SI = self instructed

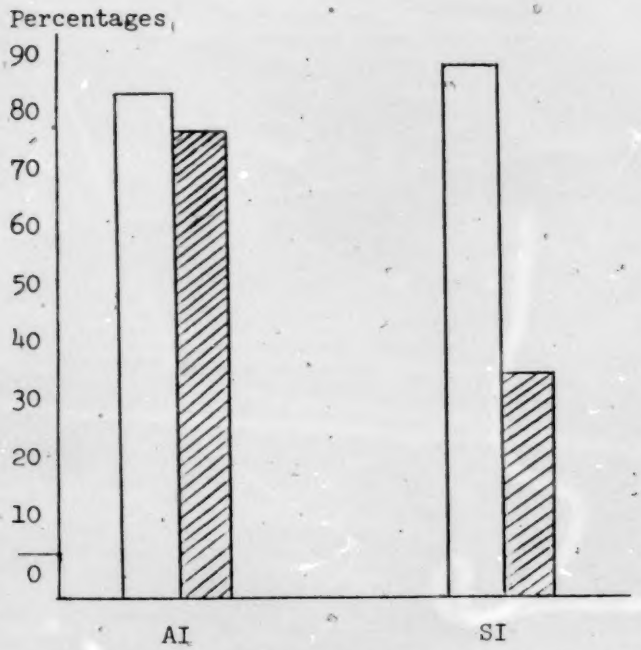

Figure 2. Percent of children recalling 3 attributes to all four sets of pictures.

= Grade 5

= Grade 1

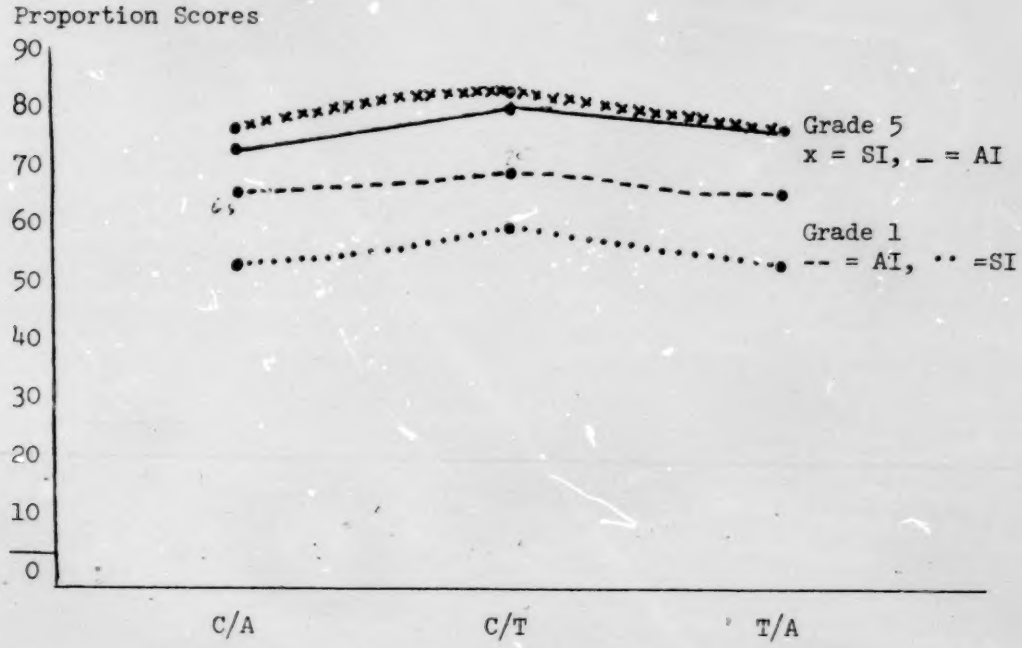

Figure 3. Amount recalled to paired attributes by each group. C/A = color and action; C/T = color and category label; T/A = category label and action.